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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JACKY JOACHIM,  
PHILIPPE ESPIARD,  
BRUNO MAHIEUXE,  
ROGER GILBERT,  
WOLFGANG HOLSTEIN, and  
GERALD AMANNT

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Appeal 2008-1904  
Application 09/786,113  
Technology Center 1700

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Decided: June 18, 2008

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Before CHUNG K. PAK, LINDA M. GAUDETTE, and  
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

PAK, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1, 2, 5 through 9, and 21 through 35, all of the claims pending in the above-identified application. We have jurisdiction pursuant to 35 U.S.C. § 6.

We AFFIRM.

*STATEMENT OF THE CASE*

The subject matter on appeal is directed to, *inter alia*, an insulation product based on mineral and/or glass wool and a method of making the same (Spec. 5-15). According to page 1, lines 8-11, of the Specification, “[i]t relates more particularly to an improved size for the wool of which such a product is composed, so as to improve the mechanical strength after ageing of this product . . . .” Further details of the appealed subject matter are recited in representative claims 1, 2, 9, 10, 15, 18, and 21 reproduced below<sup>1</sup>:

1. A method of improving the mechanical strength after ageing of an insulation product comprising mineral wool, comprising:

melting a glass or rock mineral composition,

fiberizing the molten glass or mineral composition into filaments to form a mineral wool,

applying a size comprising a thermosetting resin to the mineral wool which has just been formed,

simultaneously or sequentially applying a hydrophilic latex to the mineral wool, then

taking up the sized mineral wool in the form of a web, and then thermally curing the size,

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<sup>1</sup> Appellants have presented substantive patentability arguments for only the subject matter recited in claims 1, 2, 9, 10, 15, 18, and 21 (App. Br. 7-17). Therefore, for purposes of this appeal, we decide the propriety of the Examiner’s rejections based on these claims alone consistent with 37 C.F.R. § 41.37(c)(1)(vii) (2005).

wherein the hydrophilic latex comprises a dispersion or emulsion of homopolymer or copolymer prepared from one or more monomers each having at least one hydrophilic functional group selected from the group consisting of hydroxyl, carboxyl and ester, or

the hydrophilic latex comprises a dispersion or emulsion of a homopolymer or copolymer and a protective colloid having hydrophilic functional groups.

2. The method according to Claim 1, wherein the mineral wool dissolves in a physiological medium.

9. The method according to Claim 1, wherein the latex further comprises a water-repellent agent.

10. The method according to Claim 1, wherein the homopolymer or copolymer has a glass transition temperature  $T_g$  of less than 80°C.

15. An insulation product prepared by

melting a glass or rock mineral composition,

fiberizing the molten glass or mineral composition into filaments to form a mineral wool,

applying a size comprising a thermosetting resin to the mineral wool which has just been formed,

simultaneously or sequentially applying a hydrophilic latex to the mineral wool, then

taking up the sized mineral wool in the form of a web, and then thermally curing the size,

wherein the hydrophilic latex comprises a dispersion or emulsion of homopolymer or copolymer prepared from one or more monomers each having at least one hydrophilic functional group selected from the group consisting of hydroxyl, carboxyl and ester, or

the hydrophilic latex comprises a dispersion or emulsion of a homopolymer or copolymer and a protective colloid having hydrophilic functional groups.

18. The insulation product according to Claim 15, wherein the insulation product has a density of at least 30 kg/m<sup>3</sup>.

21. A sizing composition comprising a phenolic resin and a hydrophilic latex, wherein the hydrophilic latex comprises a dispersion or emulsion of homopolymer or copolymer prepared from one or more monomers each having at least one hydrophilic functional group selected from the group consisting of hydroxyl, carboxyl and ester, or

the hydrophilic latex comprises a dispersion or emulsion of a homopolymer or copolymer and a protective colloid having hydrophilic functional groups.

As evidence of unpatentability of the appealed subject matter, the Examiner has proffered the following prior art references:

Lindemann	US 5,190,997	Mar. 2, 1993
Strauss	US 5,284,700	Feb. 8, 1994
Kennedy	US 5,308,692	May 3, 1994
Lohe	WO 95/31411	Nov. 23, 1995
Ettema	WO 98/40437	Sep. 17, 1998
Kajander	US 5,972,434	Oct. 26, 1999

The Examiner has rejected the claims on appeal based on the above proffered prior art references as follows:

1) Claims 15, 19, and 27 under 35 U.S.C. § 102(b) as anticipated by the disclosure of Kennedy;

2) Claims 1, 5 through 8, 10 through 14, 21, and 23 through 26 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Kennedy, Kajander, and Strauss;

3) Claims 9, 22, and 32 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Kennedy, Kajander, Strauss, and Lindemann;

4) Claims 2, 16, 17, 29 through 31, 33, and 34 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of Kennedy, Kajander, Strauss, and Lohe; and

5) Claims 18, 28, and 35 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Kennedy and Lohe.

Appellants appeal from the Examiner's decision rejecting the claims on appeal under 35 U.S.C. §§ 102(b) and 103(a).

*RELEVANT FACTUAL FINDINGS, PRINCIPLES OF LAW,  
ISSUES, AND ANALYSES*

*A. REJECTION UNDER § 102(b)*

As held by the predecessor to our reviewing court in *In re Brown*, 459 F.2d 531, 535 (CCPA 1972):

[W]hen the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and physical comparisons therewith.

“Even though product-by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The

patentability of a product does not depend on its method of production.”

*In re Thorpe*, 777 F.2d 695, 697 (Fed. Cir. 1985) (citations omitted).

Here, the Examiner has correctly found (Ans. 4-5)<sup>2</sup> that Kennedy teaches a non-woven mat (useful as a building insulation product) comprising a blend of mineral and glass fibers bonded together with a cured fire resistant binder composition containing fire-resistant latex, an aqueous aldehyde condensation polymer-based thermosetting resin and an aqueous silica colloid. (Abstract and col. 1, ll. 10-15, col. 2, l. 61 to col. 3, l. 46 and 26-32). The Examiner has also correctly found (Ans. 4) that Kennedy identifies phenol-aldehyde resin as one of its few specifically named aldehyde condensation polymer-based thermosetting resins (col. 6, ll. 35-37 and 59-68). Although Kennedy does not specifically identify a hydrophilic latex comprising a homopolymer or copolymer prepared from only those monomers having the claimed specific hydrophilic functional groups (col. 8, ll. 25-62), the reference does identify a cationic silica colloid coated with metal oxides, hydrates or hydroxides (hydrophilic functional groups) as the silica colloid employed in a latex dispersion or emulsion of a homopolymer or copolymer (col. 9, ll. 20-56). This silica colloid, which is used as an inorganic binding agent, also protects the structural integrity under direct fire forced flame conditions (col. 9, ll. 3-15 and col. 10, l. 1-6). In other words, contrary to Appellants’ argument at page 10 of the Brief, Kennedy teaches the claimed “hydrophilic latex comprises a dispersion or emulsion of a

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<sup>2</sup> The Answer referred to herein is the one mailed on June 19, 2007.

homopolymer or copolymer and a protective colloid having hydrophilic functional groups.”

Appellants contend that Kennedy employs a binding, not a sizing, composition (e.g., App. Br. 9-10). It appears to be Appellants’ position that the claimed insulation product is patentably different from the insulation product taught by Kennedy simply because the binder ingredients used by Kennedy are referred to by Appellants as a sizing composition (*id*).

The dispositive question is, therefore: have Appellants demonstrated that the claimed insulation product is patentably different from Kennedy’s insulation product within the meaning of 35 U.S.C. § 102(b)? On this record, we answer this question in the negative.

As indicated *supra*, Kennedy’s insulation product is treated with a binder composition containing the same ingredients in the claimed sizing composition. Thus, regardless of how the ingredients are characterized, the Examiner has reason to believe that the claimed and prior art (Kennedy) insulation products are identical or slightly different within the meaning of 35 U.S.C. § 102(b). *Brown*, 459 F.2d at 535. However Appellants have not demonstrated that the mineral and/or glass wool treated with the claimed sizing composition containing the same ingredients as the binder composition taught by Kennedy would have rendered the claimed insulation product patentably different from that taught by Kennedy. This is especially true in this case since Appellants’ own Specification at pages 4 and 5 indicates that their sizing composition, like the binder composition taught by Kennedy, is used to promote adhesion.



At pages 7 and 8 of the Brief, Appellants refer to Examples 1 through 12 in the Specification to show unexpected results. However, this showing is not relevant to the 35 U.S.C. § 102(b) rejection in question. *In re Malagari*, 499 F.2d 1297, 1302 (CCPA 1974).

Accordingly, we concur with the Examiner that Kennedy anticipates the subject matter recited in claims 15, 19, and 27 within the meaning of 35 U.S.C. § 102 (b).

*B. REJECTIONS UNDER § 103*

Under 35 U.S.C. § 103, the factual inquiry into obviousness requires a determination of: (1) the scope and content of the prior art; (2) the differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). “[A]nalysis [of whether the subject matter of a claim would have been obvious] need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co., v. Teleflex, Inc.*, 127 S. Ct. 1727, 1740-41 (2007); *see also DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006).

*1. Claims 1, 5 through 8, 10 through 14, 21, and 23 through 26 under 35 U.S.C. §103 as unpatentable over the combined disclosures of Kennedy, Kajander, and Strauss*

The relevant disclosure of Kennedy is discussed above. The Examiner has also found that “Kennedy teaches that the fibers are produced

according to well-known methods such as fiberization through a spinning disk fiberizer, but does not disclose the specific method steps of said well-known methods” (Ans. 6). To remedy this deficiency, the Examiner has relied on the disclosures of Kajander and Strauss (*id*). The Examiner has found, and Appellants have not disputed, that:

Kajander and Strauss each teach the formation of fire resistant mineral/glass fiber insulation products wherein the fibers and insulation products are produced according to conventional methods known to the art. In particular, Kajander teaches at column 12, lines 32-41, that known processes of making fiber glass insulation products comprises [sic] the steps of forming a melt, fiberizing and forming filaments, applying a binder, collecting said filaments and curing to form an insulation product. Strauss teaches a well-known method for producing glass wool comprising melting glass, spinning into filaments, collecting the formed filaments wherein a binder is applied to the filaments and the uncured glass wool is cured. See column 5, lines 25-45. (*Compare* Ans. 6, with, e.g., App. Br. 11-14).

Appellants also have not disputed the Examiner’s determination at pages 6 and 7 of the Answer that:

Thus, the well-known and conventional method steps of Kajander and Strauss render obvious the method steps of the present claims.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Kennedy by producing his filaments through any well-know [sic] and conventional method, such as those methods seen in the prior art teachings of Kajander and Strauss, said method including fiberizing molten glass to form a mineral wool, applying a binder, collecting said mineral wool and curing, as required by claims 1 and 13. As to the requirement of "improving the mechanical strength after ageing of an insulation product comprising mineral wool", the examiner has

reason to believe that the resultant articles of Kennedy have improved mechanical strength after ageing because the prior art teaches the same, conventional process steps as applicants, utilizing a similar coating composition as required by claim 1. (*Compare* Ans. 6-7, with, e.g., App. Br. 11-14).

Appellants only contend that Kennedy, Kajander and Strauss do not teach the claimed size. (*See* Appeal and Reply Briefs in their entirety). We do not agree.

As indicated *supra*, Kennedy teaches treating its mineral and/or glass wool with its binder composition containing the same ingredients as the claimed sizing composition. We also note that Kajander teaches using a sizing composition or a binder composition interchangeably to promote adhesion of mineral and/or glass fibers (col. 6, ll. 30-37). Thus, reference to Kennedy's binder ingredients as a sizing composition in the same step does not impart patentability to the claimed subject matter.

Appellants separately argue claim 21 (App. Br. 13). Appellants only contend (*id.*) that:

Kennedy et al does not disclose a homopolymer or copolymer prepared from one or more monomers **each** having at least one hydrophilic functional group selected from the group consisting of hydroxyl, carboxyl and ester, nor does Kennedy et al disclose the presence of a protective colloid having hydrophilic functional groups.

However, as indicated *supra*, Kennedy teaches employing a silica colloid coated with metal hydrates or hydroxides corresponding to the claimed protective colloid having hydrophilic functional groups.

Appellants also separately argue claims 10, 11, 23, and 24 (App. Br. 12-13). Appellants contend that Kennedy's latex homopolymer or a

copolymer does not have the very broadly claimed glass transition temperatures, e.g., less than 80°C or greater than -5°C (*id.*). We do not agree.

Because the very broadly claimed hydrophilic latex homopolymer or copolymer dispersion or emulsion encompasses Kennedy's specific copolymer emulsion or dispersion used for the same adhesion promoting purpose, the Examiner has reason to believe that the hydrophilic latex copolymers (i.e., emulsified carboxylated vinylidene chloride/butadiene polymer from Dow Chemicals or vinyl acetate/vinyl chloride copolymer dispersion from Occidental Chemical Corp.) taught by Kennedy are identical or substantially identical to those included by claims 10, 11, 23 and 24. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977) ("Where, as here, the claimed and prior art products are identical or substantially identical, . . . the PTO can require an applicant to prove that the prior products do not necessarily or inherently possess the characteristics of his claimed product."). This is especially so in this case since the glass transition temperatures of the homopolymer or a copolymer are very broadly recited, e.g., greater than -5°C (*id.*). The burden is, therefore, shifted to Appellants to show that Kennedy's hydrophilic latex copolymers (emulsified carboxylated vinylidene chloride/butadiene polymer from Dow Chemicals or vinyl acetate/vinyl chloride copolymer dispersion from Occidental Chemical Corp) do not necessarily possess the very broadly claimed glass transition temperatures. However, on this record, Appellants have not carried their burden.

At pages 7 and 8 of the Appeal Brief, to rebut the prima facie case of obviousness established by the Examiner, Appellants refer to Examples 1 through 12 and Tables 1 through 5 to show unexpected results. However, the

Examples and Tables are limited to treating biosoluble glass fibers (not any glass or mineral fibers as claimed) with limited specific sizing compositions containing specific amounts of a specific phenol-formaldehyde resin, urea, mineral oil, ammonium sulfate, aqueous ammonia, a specific hydrophilic latex, and optionally silane (Spec., 13-24). Appellants have not demonstrated, much less explained, why and how the limited showing in the Specification is reasonably commensurate in scope with the protection sought by the broadly recited claims on appeal. *In re Kulling*, 897 F.2d 1147, 1149-50 (Fed. Cir. 1990); *In re Clemens*, 622 F.2d 1029, 1035 (CCPA 1980). Nor have the Appellants demonstrated, much less explained, why the showing in the Specification is considered to be directed to a comparison between the claimed subject matter and the closest prior art, Kennedy. *In re Baxter Travenol Labs., Inc.*, 952 F.2d 388, 392 (Fed. Cir. 1991); *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984). Appellants simply have not carried their burden of proof. *In re Freeman*, 474 F.2d 1318, 1324 (CCPA 1973).

Consequently, based on the totality of record relied upon by the Examiner and Appellants, including due consideration of Appellants' arguments and evidence, we determine that the preponderance of evidence weighs most heavily in favor of obviousness of the subject matter recited in claims 1, 5 through 8, 10 through 14, 21, and 23 through 26 within the meaning of 35 U.S.C. § 103(a).

## *2. Claims 9, 22, and 32*

The disclosures of Kennedy, Kajander and Strauss are discussed above. As acknowledged by the Examiner, they do not teach the specific

colloid recited in claim 32 or the water-repellant agent recited in claims 9 and 22 (Ans. 8).

To remedy the above deficiencies, the Examiner has relied on the disclosure of Lindemann. We find that Lindemann teaches a superior and economical binder composition useful for, *inter alia*, glass fibers used as an insulation product. (See Lindemann, col. 2, ll. 43-52, col. 4, ll. 36-49, and App. Br. 14). We find that Lindemann's binder composition, like Kennedy's binder composition, contains a thermosetting resin, a hydrophilic latex of a homopolymer or a copolymer, and various additives. (See Lindemann, col. 6, ll. 49-60, col. 10, ll. 57-68, and col. 11, ll. 1-2). We find that Lindemann teaches that its hydrophilic latex copolymer or homopolymer emulsion includes polyvinylacetate and vinylacetate-acrylic copolymer (the claimed polymer prepared from each monomer having the claimed functional group) (col. 6, ll. 55-60) and its additives include the claimed protective colloid made of polyvinyl alcohol or hydroxyl-ethyl cellulose and a friction control agent made of a silicone emulsion corresponding to the claimed silicon water-repellant agent (*compare* Lindemann, col. 8, ll. 50-54 and col. 11, ll. 1-14 *with* Appellants' claims 22 and 32). We find that Lindemann teaches that the glass transition temperatures of the polymer affect the mechanical properties involved (a result effective variable) (col. 11, ll. 3-6).

Given the above teachings, we concur with the Examiner that one of ordinary skill in the art would have been led to employ the binder composition of the type taught by Lindemann as the binder for the mineral and/or glass fiber insulation product suggested by Kennedy, with a reasonable expectation of successfully binding the mineral and glass fiber insulation products. In

reaching this determination, we also note that Kajander teaches using either a sizing or a binder, after forming a melt, fiberizing the melt, and forming filaments, to promote adhesion (col. 6, ll. 30-37).

As a rebuttal to the prima facie case established by the Examiner, Appellants again refer to Examples 1-12 and Tables 1-5 in the Specification to show unexpected results (App. Br. 7-8). However, for the factual findings set forth above, we determine that Appellants have not demonstrated that the claimed subject matter as a whole imparts unexpected results relative to the closest prior art, Kennedy.

Consequently, based on the totality of record relied upon by the Examiner and Appellants, including due consideration of Appellants' arguments and evidence, we determine that the preponderance of evidence weighs most heavily in favor of obviousness of the subject matter recited in claims 9, 22, and 32 within the meaning of 35 U.S.C. § 103(a).

*3. Claims 2, 16, 17, 29 through 31, 33, and 34*

The disclosures of Kennedy, Kajander and Strauss are discussed above. As acknowledged by the Examiner, they are silent as to the claimed biologically degradable mineral fibers (glass fibers capable of dissolving in a physiological medium (Ans. 9)).

To remedy the above deficiency, the Examiner has relied on the disclosure of Lohe (*id*). The Examiner has found, and Appellants have not disputed, that Lohe teaches the claimed biologically degradable mineral fibers useful for insulation purposes (*id*). The Examiner then goes on to conclude that “[i]t would have been obvious to use [such biodegradable mineral] fibers .

. . [as] Kennedy['s] mineral fibers . . . for the efficacious properties associated therewith, namely, biological degradability, temperature stability and good processability” (*id.*).

Appellants have not questioned the Examiner’s conclusion above (App. Br. 16 and Rep. Br. 5-6). Rather, Appellants repeat the same arguments raised in connection with the Examiner’s § 103 rejection based on the combined disclosures of Kennedy, Kajander, and Strauss set forth above (*id.*). Accordingly, based on the same factual findings and conclusions discussed above, we determine that the preponderance of evidence weighs most heavily in favor of obviousness of the subject matter recited in claims 2, 16, 17, 29 through 31, 33, and 34 within the meaning of 35 U.S.C. § 103(a).

4. *Claims 18, 28, and 35*

Appellants have not challenged the Examiner’s determination at page 10 of the Answer that:

[I]t would have been obvious to one of ordinary skill in the art at the time the invention was made to produce an insulation product of the type set forth by applicants wherein the density of said product is within the range generally known in the art and as set forth by applicants in claims 18, 28, and 35.  
[Compare Ans. 10 with e.g., App. Br. 16-17].

Rather, Appellants repeat the same arguments raised in connection with the Examiner’s § 103 rejection based on the combined disclosures of Kennedy, Kajander, and Strauss set forth above (App. Br. 16-17 and Rep. Br. 6). Accordingly, based on the same factual findings and conclusions discussed above, we determine that the preponderance of evidence weighs most heavily



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in favor of obviousness of the subject matter recited in claims 18, 28, and 35 within the meaning of 35 U.S.C. § 103(a).

*ORDER*

The decision of the Examiner is affirmed.

*TIME PERIOD*

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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